PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

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NOTIFICATION CONCERNING
TRANSMITTAL OF COPY OF INTERNATIONAL
PRELIMINARY REPORT ON PATENTABILITY
(CHAPTER I OF THE PATENT COOPERATION
TREATY)

(PCT Rule 44bis.1(c))

To:
FEIGENBAUM, David L. Fish & Richardson P.C. P.o. Box 1022 Minneapolis, Minnesota 55440 ETATS-UNIS D'AMERIQUE

Date of mailing *(day/month/year)* 19 March 2009 (19.03.2009)	

Applicant's or agent's file reference 12144-015WO1	**IMPORTANT NOTICE**

International application No. PCT/US2006/025018	International filing date *(day/month/year)* 26 June 2006 (26.06.2006)	Priority date *(day/month/year)* 24 June 2005 (24.06.2005)

Applicant
AIRVANA, INC. et al

The International Bureau transmits herewith a copy of the international preliminary report on patentability (Chapter I of the Patent Cooperation Treaty)

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer **Beate Giffo-Schmitt**
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Form PCT/IB/326 (January 2004)

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 12144-015WO1	**FOR FURTHER ACTION**	See item 4 below
International application No. PCT/US2006/025018	International filing date (day/month/year) 26 June 2006 (26.06.2006)	Priority date (day/month/year) 24 June 2005 (24.06.2005)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant AIRVANA, INC.		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

   In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

   ☒ Box No. I   Basis of the report

   ☐ Box No. II   Priority

   ☐ Box No. III   Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

   ☐ Box No. IV   Lack of unity of invention

   ☒ Box No. V   Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

   ☐ Box No. VI   Certain documents cited

   ☐ Box No. VII   Certain defects in the international application

   ☐ Box No. VIII   Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

	Date of issuance of this report 10 March 2009 (10.03.2009)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer **Beate Giffo-Schmitt**
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Form PCT/IB/373 (January 2004)

PATENT COOPERATION TREATY

From the 237
INTERNATIONAL SEARCHING AUTHORITY

To: David L. Feigenbaum Fish & Richardson P.C. P.O. Box 1022 Minneapolis, Minnesota 44330	**PCT** WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	29 JAN 2008

Applicant's or agent's file reference 12144-015WO1	FOR FURTHER ACTION See paragraph 2 below

International application No. PCT/US 06/25018	International filing date *(day/month/year)* 26 June 2006 (26.06.2006)	Priority date *(day/month/year)* 24 June 2005 (24.06.2005)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G06F 15/16 (2007.01)
USPC - 709/227

Applicant Airvana, Inc.

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1. This opinion contains indications relating to the following items:

   ☒ Box No. I Basis of the opinion

   ☐ Box No. II Priority

   ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

   ☐ Box No. IV Lack of unity of invention

   ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

   ☐ Box No. VI Certain documents cited

   ☐ Box No. VII Certain defects in the international application

   ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

   If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

   If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

   For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Date of completion of this opinion 06 August 2007 (06.08.2007)	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (April 2007)

Box No. I	Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account **the rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of:

   a. type of material

   ☐ a sequence listing

   ☐ table(s) related to the sequence listing

   b. format of material

   ☐ on paper

   ☐ in electronic form

   c. time of filing/furnishing

   ☐ contained in the international application as filed

   ☐ filed together with the international application in electronic form

   ☐ furnished subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

Box No. V   Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1.   Statement

Novelty (N)	Claims	1-22, 25-59	YES
	Claims	23-24	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-59	NO
Industrial applicability (IA)	Claims	1-59	YES
	Claims	None	NO

2.   Citations and explanations:

Claims 23-24 lack novelty under PCT Article 33(2) as being anticipated by US 2004/0038700 A1 (Gibbs).

Claim 23 is anticpated by Gibbs, because Gibbs teaches a method comprising reestablishing a breached session in response to receiving a close session message (para [0046]-[0051]; Fig 4-5, item 508, 512).

Regarding claim 24, Gibbs teaches that reestablishing the breached session further comprises: closing the breached session; and sending a request to open a new session (para [0046]-[0051]; Fig 4-5, item 508, 512).

Claims 42 and 44-50 lack an inventive step under PCT Article 33(3) as being obvious over Gibbs in view of US 6542,481 B2 to Foore et al. (hereinafter 'Foore').

Regarding claim 42, Gibbs teaches a method for reestablishing breached sessions in a wireless communications network (para [0046]-[0051]; Fig 4-5, item 508, 512), the method comprising: receiving a request to transmit data to an access terminal associated with a breached session (para [0046]-[0051]). Gibbs does not specifically mention placing a first or second session in a queue. Foore teaches placing a first session in a queue for reestablishment of the first session; placing a second session in the queue for reestablishment of the second session, wherein the second session is prioritized below the first session in the queue; and promoting the second session above the first session in the queue in response to receiving a request to transmit data to an access terminal associated with the second session (col 6, ln 49-51; col 7, ln 66-col 8, ln 45; Fig 4). It would have been obvious for one of skill in the art to combine the teachings of Gibbs and Foore, because it would have provided a scheme for determining an efficient allocation of N fixed rate data channels amongst M users, as taught by Foore (col 3, ln 49-51).

Regarding claim 44, Foore teaches triggering a reestablishment of the second session (col 8, ln 1-17).

Regarding claim 45, Gibbs teaches that triggering a reestablishment comprises generating and transmitting a close session message to the access terminal associated with the second session (para [0051]; Fig 5, item 508).

Regarding claim 46, Foore teaches reestablishing the second session between a wireless network device and the access terminal (col 8, ln 1-17).

Regarding claim 47, Foore teaches that reestablishment is triggered based on a load state of a second wireless network device (col 8, ln 57-col 9, ln 3).

Regarding claim 48, Foore teaches triggering reestablishment of the first session after triggering reestablishment of the second session (col 8, ln 1-17).

Regarding claim 49, Foore teaches triggering reestablishment of the first session after triggering reestablishment of the second session (col 8, ln 1-17). Gibbs teaches receiving a request to transmit data to an access terminal associated with the first session (para [0046]-[0051]). The combination of Foore and Gibbs teaches to one of skill in the art triggering reestablishment of the first session after triggering reestablishment of the second session only after receiving a request to transmit data to an access terminal associated with the first session.

Regarding claim 50, Foore teaches monitoring the time that the first session has spent in the queue; and deleting the first session if it has occupied an entry in the queue past a predetermined time period (col 9, ln 4-18; col 8, ln 13-16).

(see continuation in supplemental box)

Form PCT/ISA/237 (Box No. V) (April 2007)

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Claims 1-7, 9-10, 14, 17-22, 25-28, 30-32, 35-41 and 51-54 lack an inventive step under PCT Article 33(3) as being obvious over Gibbs in view of US 2004/0008649 A1 to Wybenga et al. (hereinafter 'Wybenga').

Regarding claim 1, Wybenga teaches saving at least a portion of session information associated with a first session between an access terminal and a first wireless network device (para [0021]); and triggering a reestablishment of the first session using the portion of the session information (para [0022]). Wybenga does not specifically teach triggering a reestablishment of the first session in response to detecting an unexpected degradation of the first session . However, Gibbs teaches triggering a reestablishment of the first session in response to detecting an unexpected degradation of the first session (para [0046]-[0051]). It would have been obvious for one of skill in the art to combine the teachings of Wybenga and Gibbs, because both references are directed toward the specific problem of preserving and reestablishing sessions in a wireless network (Gibbs, Abstract) (Wybenga, para [0019], [0021], [0022]).

Regarding claim 25, Wybenga teaches a radio network controller comprising: a first radio node server module configured to establish a session with a first access terminal (para [0021]); a storage device configured to store at least a portion of the session information that is sufficient to reestablish the session (para [0021], [0022]); and a control mechanism configured to cause a second radio node server module device to reestablish the session with the access terminal (para [0022]). Wybenga does not specifically teach reestablishing the session after detecting a degradation of the session between the first radio node server module and the access terminal. However, Gibbs teaches reestablishing the session after detecting a degradation of the session between the first radio node server module and the access terminal (para [0046]-[0051]). It would have been obvious for one of skill in the art to combine the teachings of Wybenga and Gibbs, because both references are directed toward the specific problem of preserving and reestablishing sessions in a wireless network (Gibbs, Abstract) (Wybenga, para [0019], [0021], [0022]).

Regarding claim 51, Wybenga teaches a computer readable medium having instructions stored thereon (para [0030]), that, when executed by a processor, cause the processor to: save information associated with a first session with a wireless access terminal on a wireless network (para [0021]); and trigger a reestablishment of the first session using the saved information (para [0022]). Wybenga does not specifically teach triggering a reestablishment of the first session in response to detecting an unexpected degradation of the first session. However, Gibbs teaches a computer readable medium having instructions stored thereon (para [0034]), that, when executed by a processor, cause the processor to trigger a reestablishment of the first session in response to detecting an unexpected degradation of the first session (para [0046]-[0051]). It would have been obvious for one of skill in the art to combine the teachings of Wybenga and Gibbs, because both references are directed toward the specific problem of preserving and reestablishing sessions in a wireless network (Gibbs, Abstract) (Wybenga, para [0019], [0021], [0022]).

Regarding claims 2, 26 and 31, Wybenga teaches that degradation comprises cessation; and that the degradation comprises termination (para [0022]).

Regarding claim 3, Gibbs teaches transmitting to the access terminal a close session message (para [0051]; Fig 5, item 508).

Regarding claims 4 and 54, Wybenga teaches replicating the first session without closing the first session (para [0022]).

Regarding claim 5, Wybenga teaches degradation of the first session comprises detecting a state of the first wireless device (para [0027]).

Regarding claim 6, Gibbs teaches that the state comprises failure (para [0048]).

Regarding claim 7 and 53, Gibbs teaches restoring the first session upon receiving a request to open a new session from the access terminal (para [0054]).

Regarding claims 9 and 30, Gibbs teaches that transmitting a close session message occurs immediately upon detection of a unexpected degradation of the first session; and that the second radio node server module transmits a close session message immediately after the control mechanism detects a degradation of the session between the first radio node server module and the access terminal (para [0051]; Fig 5, item 508).

Regarding claims 10 and 32, Gibbs teaches that transmitting a close session message occurs after receiving a request to transmit data to the access terminal; and that the second radio node server module transmits a close session message only after the control mechanism receives a request to transmit data to the access terminal. (para [0051], [0054]).

Regarding claim 14, Wybenga teaches that the access terminal comprises at least one of: a cellular telephone, a personal data assistant, or a laptop computer (para [0002]).

Regarding claim 17, Gibbs teaches establishing the first session between the access terminal and a first wireless network device (para [0047]).

Regarding claim 18, Wybenga teaches that wherein the session information is saved on a second wireless network device (para [0021]).

Regarding claims 19 and 20, Wybenga teaches that the close session message is generated and transmitted by the second wireless network device (para [0066]).

Regarding claim 21, Wybenga teaches establishing a second session between the access terminal and the second wireless network device; and saving at least a portion of the second session information to a third wireless network device, wherein the portion of the second session information is sufficient to reestablish the second session between the access terminal and the third wireless network device (para [0021]).

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Box V(2) – Citations and Explanations (from first supplemental box)

Regarding claim 22, Gibbs teaches that the portion of the second session information is sufficient to generate a close session message for the access terminal for the second session (para [0051]; Fig 5, item 508).

Regarding claim 27, Wybenga teaches that the session information is sufficient to generate a close session message and the control mechanism is further configured to transmit the close session message to the access terminal (para [0066]).

Regarding claim 28, Wybenga teaches that the control mechanism is further configured to retrieve the portion of the session information from the storage device and send the portion to the second radio node server module without causing the session to be closed (para [0061]).

Regarding claim 35, Wybenga teaches that the first radio node server module comprises a first processing card and the second radio node server module comprises a second processing card (para [0049]).

Regarding claim 36, Gibbs teaches that the storage device comprises at least one of a non-volatile random access memory, a flash memory, and a disk memory (para [0034]).

Regarding claim 37, Wybenga teaches that the control mechanism is implemented on a processor, the processor connecting to the first radio node server module and the second radio node server module through a high speed bus (para [0049]-[0051]).

Regarding claims 38-41, Gibbs teaches that the control mechanism is implemented on the second radio node server module; and that the control mechanism is implemented on a third radio node server module (para [0034]).

Regarding claim 52, Gibbs teaches that triggering a reestablishment comprises transmitting a close session message to the access terminal, the close session message instructing the access terminal to open a new session (para [0053]).

Claims 11-13, 15-16, 33-34 and 56-59 lack an inventive step under PCT Article 33(3) as being obvious over Gibbs in view of Wybenga and further in view of Foore.

Regarding claims 11 and 56, the combination of Gibbs and Wybenga does not specifically disclose that the reestablishment of the first session is triggered based on a load state of a second wireless network device; or that the reestablishment of the first session is triggered based on a load. However, Foore teaches that the reestablishment of the first session is triggered based on a load state of a second wireless network device (col 8, ln 57-col 9, ln 3). It would have been obvious for one of skill in the art to modify the combination of Gibbs and Wybenga with the teaching of Foore, because it would have provided a scheme for determining an efficient allocation of N fixed rate data channels amongst M users, as taught by Foore (col 3, ln 49-51).

Regarding claim 12, 33 and 57, the combination of Gibbs and Wybenga does not specifically disclose placing degraded sessions in a queue. However, Foore teaches placing sessions in a queue for transmitting a close session message; and moving a queued session up in the queue in response to receiving a request to transmit data to an access terminal associated with the session; and a queue for transmitting a close session message wherein sessions are placed, the queue moving a closed session to a higher entry in response to receiving a request to transmit data to an access terminal associated with at least one of the sessions; and causing the processor to prioritize closed network sessions in a wireless communications network, the processor being caused to: place a first session in a queue for reestablishment of the first session; place a second session in the queue for reestablishment of the second session, wherein the second session is prioritized below the first session in the queue; and promote the second session above the first session in the queue in response to receiving a request to transmit data to an access terminal associated with the second session (col 6, ln 49-51; col 7, ln 66-col 8, ln 45; Fig 4). It would have been obvious for one of skill in the art to modify the combination of Gibbs and Wybenga with the teaching of Foore, because it would have provided a scheme for determining an efficient allocation of N fixed rate data channels amongst M users, as taught by Foore (col 3, ln 49-51).

Regarding claims 13 and 34, Wybenga teaches that the degraded sessions comprise breached sessions (para [0019]).

Regarding claims 15 and 16, Foore teaches deleting the session information for the session assigned to the access terminal if the access terminal has failed to request to open a new session after a predetermined time has elapsed after transmitting the close session message to the access terminal; and deleting the session information for the session assigned to the access terminal if a second wireless network device fails to reestablish the first session with the access terminal after a predetermined time has elapsed after sending the portion of the session information (col 9, ln 4-18; col 8, ln 13-16).

Regarding claim 58, Foore teaches triggering reestablishment of the first session after triggering reestablishment of the second session (col 8, ln 1-17).

Regarding claim 59, Foore teaches triggering reestablishment of the first session after triggering reestablishment of the second session (col 8, ln 1-17). Gibbs teaches receiving a request to transmit data to an access terminal associated with the first session (para [0046]-[0051]). The combination of Foore and Gibbs teaches to one of skill in the art triggering reestablishment of the first session after triggering reestablishment of the second session only after receiving a request to transmit data to an access terminal associated with the first session.

(see continuation in third supplemental box)

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Box V(2) -- Citations and Explanations (from second supplemental box)

Claim 43 lacks an inventive step under PCT Article 33(3) as being obvious over Gibbs in view of Foore and further in view of US 2003/0031201 A1 (Choi).

Regarding claim 43, the combination of Gibbs and Foore does note specifically teach that the wireless communications network uses a 1.times. Evolution-Data Optimized protocol. However, Choi teaches that the wireless communications network uses a 1.times. Evolution-Data Optimized protocol (para [0019]-[0020], [0023], [0027]). It would have been obvious for one of skill in the art to modify the combination of Gibbs and Foore with the teaching of Choi, because it would have provided a method for collecting and allocating a radio resource to a mobile station, as taught by Choi (para [0030]).

Claim 8, 29, and 55 lack an inventive step under PCT Article 33(3) as being obvious over Gibbs in view of Wybenga further in view of Foore and further in view of Choi.

Regarding claim 8, the combination of Gibbs, Wybenga and Foore does note specifically teach that the triggering complies with a 1.times. Evolution-Data Optimized protocol. However, Choi teaches triggering that complies with a 1.times. Evolution-Data Optimized protocol (para [0019]-[0020], [0023], [0027]). It would have been obvious for one of skill in the art to modify the combination of Gibbs, Wybenga and Foore with the teaching of Choi, because it would have provided a method for collecting and allocating a radio resource to a mobile station, as taught by Choi (para [0030]).

Regarding claim 29, the combination of Gibbs, Wybenga and Foore does note specifically teach that the control mechanism is configured to comply with a 1.times. Evolution-Data Optimized protocol. However, Choi teaches triggering that the control mechanism is configured to comply with a 1.times. Evolution-Data Optimized protocol (para [0019]-[0020], [0023], [0027]). It would have been obvious for one of skill in the art to modify the combination of Gibbs, Wybenga and Foore with the teaching of Choi, because it would have provided a method for collecting and allocating a radio resource to a mobile station, as taught by Choi (para [0030]).

Regarding claim 55, the combination of Gibbs, Wybenga and Foore does note specifically teach that the wireless network uses the 1.times. Evolution-Data Optimized protocol. However, Choi teaches triggering that the wireless network uses the 1.times. Evolution-Data Optimized protocol (para [0019]-[0020], [0023], [0027]). It would have been obvious for one of skill in the art to modify the combination of Gibbs, Wybenga and Foore with the teaching of Choi, because it would have provided a method for collecting and allocating a radio resource to a mobile station, as taught by Choi (para [0030]).

Claims 1-59 have industrial applicability as defined by PCT Article 33(4), because the subject matter can be made or used in industry.